

**AMENDED CLAIMS**

[received by the International Bureau on 03 June 2005 (03.06.05);  
Claims 1, 21 and 25 amended,  
claims 2-20 and 22-24 unchanged (2 pages)]

- 1 1. A surface traversing apparatus adapted to be adhered to a surface by a partial vacuum, the  
2 apparatus comprising:
  - 3 a frame forming a chamber;
  - 4 a seal having a substantially closed seal perimeter defining an opening of the chamber, the  
5 seal perimeter having at least a portion adapted substantially for rolling relative to the chamber  
6 and for contact with the surface to be traversed to prevent leakage and maintain a seal with the  
7 surface; and
  - 8 a drive configured to move the apparatus relative to the surface.
- 1 2. The apparatus of claim 1 wherein a portion of the seal perimeter comprises at least one  
2 roller.
- 1 3. The apparatus of claim 2 wherein the at least one roller comprises a compressible outer  
2 surface.
- 1 4. The apparatus of claim 2 wherein the drive is adapted to power the at least one roller.
- 1 5. The apparatus of claim 1 wherein a portion of the seal perimeter comprises at least two  
2 rollers.
- 1 6. The apparatus of claim 5 wherein the at least two rollers are substantially parallel and  
2 disposed on opposing sides of the frame.
- 1 7. The apparatus of claim 1 wherein a portion of the seal perimeter comprises a track.
- 1 8. The apparatus of claim 7 wherein the track comprises a plurality of contiguous pads.
- 1 9. The apparatus of claim 8 wherein at least one pad comprises a flexible sealing element.
- 1 10. The apparatus of claim 8 wherein at least one pad comprises a pair of independently  
2 compressible flexible sealing elements.
- 1 11. The apparatus of claim 7 wherein the drive is adapted to power the track.
- 1 12. The apparatus of claim 1 wherein a portion of the seal perimeter comprises two tracks.
- 1 13. The apparatus of claim 12 wherein the two tracks are substantially parallel and disposed  
2 on opposing sides of the frame.
- 1 14. The apparatus of claim 1 further comprising means for maintaining the apparatus in  
2 contact with the surface.
- 1 15. The apparatus of claim 14 wherein the maintaining means comprises a pressure  
2 differential relative to a zone defined at least in part by the seal perimeter.
- 1 16. The apparatus of claim 15 wherein the pressure differential is a partial vacuum.
- 1 17. The apparatus of claim 1 further comprising a processing apparatus mounted to the frame  
2 and adapted to process at least a portion of the surface.

- 1    18.    The apparatus of claim 1 wherein the seal perimeter comprises a substantially closed
- 2    polygon.
- 1    19.    The apparatus of claim 18 wherein the polygon is a quadrilateral.
- 1    20.    The apparatus of claim 1 further comprising a processor for controlling the apparatus.
- 1    21.    A surface traversing apparatus adapted to be adhered to a surface by a partial vacuum, the  
2    apparatus comprising:
  - 3        a frame forming a chamber;
  - 4        a locomoting seal mounted to the frame and adapted substantially for rolling relative to the  
5    chamber and for contact with the surface to be traversed to prevent leakage and maintain a seal  
6    with the surface; and
  - 7        a drive configured to move the apparatus relative to the surface.
- 1    22.    The apparatus of claim 21 wherein the locomoting seal comprises a perimeter, at least a  
2    portion of which cooperates with the drive to move the apparatus relative to the surface.
- 1    23.    A surface traversing apparatus, the apparatus comprising:
  - 2        a frame;
  - 3        a seal comprising:
    - 4            first and second substantially parallel rollers disposed on opposing sides of  
5    the frame, wherein the rollers are rotatably connected to the frame;
    - 6            first and second tracks disposed on additional opposing sides of the frame,  
7    wherein the rollers and tracks are adapted substantially for rolling contact with the  
8    surface to be traversed and maintaining a seal with the surface; and
    - 9            a drive configured to move the apparatus relative to the surface.
- 1    24.    The surface traversing apparatus of claim 23, wherein at least one of the first and second  
2    rollers comprises an additional track.
- 1    25.    A method of traversing a surface, the method comprising the steps of:
  - 2        providing an apparatus adapted to be adhered to a surface by a partial vacuum, the  
3    apparatus comprising:
    - 4        a frame forming a chamber;
    - 5        a seal having a substantially closed seal perimeter defining an opening of the  
6    chamber, the seal perimeter adapted substantially for rolling relative to the chamber and  
7    for contact with the surface to be traversed to prevent leakage and maintain a seal with the  
8    surface; and
    - 9        a drive configured to move the apparatus relative to the surface; and
  - 10      traversing the surface with the apparatus.